Ex. No. 10	APPLICATION DEVELOPMENT USING JDBC CONNECTIVITY	
Date of Exercise	28.10.2023	

Objective

To develop an application using JDBC connectivity.

Detailed procedure:

1. Load the driver
2. Define the Connection URL
3. Establish the connection

```
import java.sql.*;
……
Try
{
    Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
    Connection con=
    DriverManager.getConnection("jdbc:odbc:3csec","system","manager");
    //3csec->DSN ,system->username,manager->pwd
}
Catch (Exception e){
//print error
}
```

4. Create a statement object
5. Execute a Query

Sample Program:

```
import java.sql.*;
import java.util.*;
import java.util.Date;
import java.io.*;

public class AA{
   public static void main(String a[])    {
```

```
int count=0,emp_id=0,eno=0,increment=0,sal=0;
String i;
DataInputStream in=new DataInputStream(System.in);
ResultSet rs=null;
ResultSet rs1=null;
Statement stmt=null;
Statement stmt1=null;

try      {
    Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
    Connection con  =
          DriverManager.getConnection("jdbc:odbc:hema","system","manager");
    stmt=con.createStatement();
    stmt1=con.createStatement();

    //**No of rows in department table
    rs=stmt.executeQuery("Select * from employees");
    do   {
          System.out.println(" ********** Payroll Processing **********");
          System.out.println();
          System.out.println("1. View the details of Employees");
          System.out.println("2. View the salary details of employees");
          System.out.println("3. Enter the employee no for whom the salary has to
          be increased");
          System.out.println("4. Enter the % of increase");
          System.out.println();
          System.out.println("Enter the choice");
          i=in.readLine();

          switch(Integer.parseInt(i))      {
          case 1:{
              rs=stmt.executeQuery("Select * from employees");
              while(rs.next())      {
                    System.out.println(rs.getInt(1)+"  "+rs.getString(2) + "  "+
                    rs.getDate(6)+"   "+rs.getString(7)+"    "+rs.getInt(8));
              }
              break;
```

```
                    }
                    case 2: {
                        rs=stmt.executeQuery("Select * from employees");
                        while(rs.next())      {
                              System.out.println(rs.getInt(1)+"  "+rs.getString(8));
                        }
                        break;
                    }
                    case 3: {
                        System.out.println("Enter the employee_id");
                        eno=Integer.parseInt(in.readLine());
                        rs=stmt.executeQuery("Select * from employees where employee_id=
                        '"+eno+"'");
                        rs.next();
                        sal=rs.getInt(8);
                        System.out.println(rs.getInt(1)+"  "+rs.getString(2)+"  "+rs.getDate(6)
                        +"   " + rs.getString(7)+"    "+rs.getInt(8));
                       System.out.println("Enter the amount to increment");
                       increment=Integer.parseInt(in.readLine());
                       sal=sal+increment;
                       int rowCount = stmt.executeUpdate("Update employees set salary='"+
                       sal + "'where employee_id='"+eno+"'");
                       break;
                    }

                }
            } while(Integer.parseInt(i)!=0);
        }
        catch(Exception e){
            System.out.println(e);
        }
    }
}
```

Questions:

Develop an application using JDBC connectivity and perform the following

Display a record

```
package SqlFrontend; import java.sql.*; public class DisplayRecords {     public static
void main(String[] args) throws ClassNotFoundException, SQLException {

      Class.forName("oracle.jdbc.driver.OracleDriver");

      Connection con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe","Melwin","oppo");

      Statement stmt = con.createStatement();

      ResultSet rs = stmt.executeQuery("select * from Students5022");
while (rs.next()) {

         System.out.println(rs.getInt("student_id") + rs.getString("first_name"));

      }

   }

}
```

Output:

```
1John
2Jane
3Michael
4Emily
5David
6Sarah
7Christopher
8Olivia
9Ethan
10Ava
11Test
16sharin

Process finished with exit code 0
```

Insert a record

```
package SqlFrontend;

import java.sql.*;

public class InsertRecord {     public static void main(String[] args) throws
ClassNotFoundException, SQLException {

        Class.forName("oracle.jdbc.driver.OracleDriver");
```

```
        Connection con =
    DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe", "Melwin", "oppo");


        // Define the INSERT SQL statement with all the columns

     String insertSql = "INSERT INTO Students5022 (student_id, first_name, last_name,
date_of_birth, gender, email, phone_number) VALUES (?, ?, ?, ?, ?, ?, ?)";
    // Create a PreparedStatement

        PreparedStatement preparedStatement = con.prepareStatement(insertSql);


        // Set the values for the INSERT
    statement       int student_id = 16;

        String first_name = "Melwin";

        String last_name = "raj";

        String date_of_birth = "14/08/2003";

        String gender = "Male";

        String email = "melwindavis@gmail.com";

        String phone_number = "9363085354";


        preparedStatement.setInt(1, student_id);
    preparedStatement.setString(2, first_name);
    preparedStatement.setString(3, last_name);
    preparedStatement.setString(4, date_of_birth);
    preparedStatement.setString(5, gender);
    preparedStatement.setString(6, email);
    preparedStatement.setString(7, phone_number);
```

```
        // Execute the INSERT statement
        int rowsInserted = preparedStatement.executeUpdate();

        if (rowsInserted > 0) {
            System.out.println("A new record was inserted
successfully.");        } else {
            System.out.println("Failed to insert the record.");
        }

        // Close the resources
preparedStatement.close();
        con.close();
    }
}
```

Output:

```
A new record was inserted successfully.

Process finished with exit code 0
```

```
1John
2Jane
3Michael
4Emily
5David
6Sarah
7Christopher
8Olivia
9Ethan
10Ava
11Test
16sharin

Process finished with exit code 0
```

Update record

```
package SqlFrontend;


import java.sql.*;


public class UpdateRecord {     public static void main(String[] args) throws
ClassNotFoundException, SQLException {

    Class.forName("oracle.jdbc.driver.OracleDriver");

    Connection con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe", "sharin", "oppo");
```

```
// Define the UPDATE SQL statement with a WHERE clause to specify the record to update
String updateSql = "UPDATE Students5022 SET first_name = ?, last_name = ? WHERE student_id = ?";

    // Create a PreparedStatement

    PreparedStatement preparedStatement = con.prepareStatement(updateSql);


    // Set the new values for the columns you want to update

    String newFirstName = "raj";
String newLastName = "sharin";

    int studentIdToUpdate = 1;  // Specify the student_id for the record you want to update


    preparedStatement.setString(1, newFirstName);

    preparedStatement.setString(2, newLastName);
preparedStatement.setInt(3, studentIdToUpdate);


    // Execute the UPDATE statement

    int rowsUpdated = preparedStatement.executeUpdate();


    if (rowsUpdated > 0) {

       System.out.println("Record updated successfully.");

    } else {

       System.out.println("No records were updated (record not found or values didn't change).");
```

```
        }

        // Close the resources
preparedStatement.close();
        con.close();
    }
}
```

Output:

```
Record updated successfully.

Process finished with exit code 0
```

```
1raj
2Jane
3Michael
4Emily
5David
6Sarah
7Christopher
8Olivia
9Ethan
10Ava
11Test
17sharin

Process finished with exit code 0
```

Delete a record

```
package SqlFrontend;

import java.sql.*;


public class DeleteRecord {     public static void main(String[] args) throws
ClassNotFoundException, SQLException {

        Class.forName("oracle.jdbc.driver.OracleDriver");

        Connection          con      =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe", "sharin", "oppo");


        // Define the DELETE SQL statement with a WHERE clause to specify the record to delete

        String deleteSql = "DELETE FROM Students5022 WHERE student_id = ?";


        // Create a PreparedStatement

PreparedStatement preparedStatement = con.prepareStatement(deleteSql);


        // Set the value for the student_id to specify the record to delete

        int studentIdToDelete = 16;  // Specify the student_id for the record you want to delete


        preparedStatement.setInt(1, studentIdToDelete);


        // Execute the DELETE statement

        int rowsDeleted = preparedStatement.executeUpdate();
```

```
        if (rowsDeleted > 0) {
            System.out.println("Record deleted successfully.");
        } else {
            System.out.println("No records were deleted (record not found).");
        }

        // Close the resources
preparedStatement.close();
        con.close();
    }
}
```

Output:

```
Record deleted successfully.

Process finished with exit code 0
```

```
1raj
2Jane
3Michael
4Emily
5David
6Sarah
7Christopher
8Olivia
9Ethan
10Ava
11Test
17sharin

Process finished with exit code 0
```

RESULT:
The JDBC connectivity was done and the database was updated through the interface.